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determination of a physiological parameter based upon what is expected about the calculation in a particular physical system. For instance, see p. 48, line 16 – p. 49, line 1, p. 50, line 20 – p. 51, line 2, and page 56, line 36 - page 57, line 16. However, the language has been amended to use the term “knowledge” rather than expectation. This language is clearly supported at least at the references listed above.

The Examiner rejected Claim 57 under 35 U.S.C. §112, second paragraph, as unclear in its basis for the phrase "based upon the confidence." Applicants have removed reference to this word. Withdrawal of the rejections is requested.

Rejection under 35 U.S.C. §102(e)

The Examiner rejected Claims 39-56 and 62-64 under 35 U.S.C. §102(e) as being anticipated by Robinson et al. In view of the foregoing amendments and the following remarks, withdrawal of the rejection is requested.

The claims of the present invention involve determining arterial oxygen saturation in the presence of motion induced noise. As explained in the specification, motion causes erratic attenuation in the signal, primarily due to the movement of venous blood caused by the motion. This noise is difficult to account for because of its erratic nature, and because it is caused by attenuation of the light by blood movement (the very thing being monitored). This is very different than removing other noise in the system, such as bone, muscle, hair, fingernails and the like. These are of a more static nature, and thus easier to remove.

The Robinson patent cited by the examiner is fundamentally distinguishable from the present claims. Robinson deals with a perceived problem that it is difficult to obtain a good signal in fetal oximetry due to the use of a reflectance sensor (See Col. 7, lines 45-58), due to the lower difference between systolic and diastolic pressures (Col. 7, line 59 - Col. 8, line 20), and due to the low oxygen saturation required in the fetal environment (Col. 8, line 21 - 53). Robinson is addressing signal-to-noise ratio in fetal oximetry, but does not address reducing motion induced noise (primarily due to venous blood movement during motion). Robinson uses a multivariate algorithm in order to decompose overlapping spectra caused by the various fetal oximetry system problems to get, he believes, a better signal. Nowhere does Robinson disclose or suggest decomposing the signal in terms of motion induced noise and the arterial blood signal.

Although both problems (that addressed by Robinson and that addressed in the present invention) have been referred to as noise interference, they are fundamentally different in their

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origins and the way to eliminate them. Multivariate analysis in Robinson is used to eliminate overlapping spectra, but it does not remove motion artifacts, which possess a dynamic element, from the combined signal. To remove the effect of overlapping spectra, Robinson uses many wavelengths, decomposes the spectra, and assigns absorption values to the decomposition (Multivariate analysis.)

In the present application, the high number of wavelengths is not required, and the signals are processed with an adaptive filter decomposed into components so the signals can be interpreted to calculate arterial oxygen saturation during motion. The processing of the present invention can be accomplished in the time domain or frequency domain; however, this is different from decomposing overlapping spectra, which deals with absorption and emission of light by atoms and molecules with optical frequencies range and quantum mechanics rules.

Accordingly, applicants believe that the claims are patentably distinguished over the cited art, and allowance is requested.

In view of the foregoing amendments and remarks, all claims are believed to be in condition for allowance. If any issues remain to be resolved, the Examiner is cordially invited to contact the undersigned such that any issues may be promptly resolved.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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